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PETROLEUM.

IS THERE COAL OIL IN MISSOURI?

A correspondent of the *Missouri Democrat* writes: Knowing the great interests you take in developing the resources of Missouri, in calling the attention of capitalists and others to the rich mineral and agricultural resources of the State, I presume you will not object to publishing a few lines from me in your valuable paper, in regard to the oil regions of Missouri. Having been engaged for the last three years in boring and testing oil wells on Oil Creek, Pennsylvania, and having business in your State, I concluded I would visit Carroll county and examine the indications of oil said to exist there. After riding round and giving these indications a thorough examination, I am astonished that this part of our great country has not received more attention from oil men. The indications are exceedingly good. In a circuit of ten miles there are ten or twelve springs of running oil, and after examining it carefully, I found it to be petroleum.

Where you find the sandstone cropping out, it is thoroughly impregnated with oil, and on examination, I find it to be pure oil bearing rock. About the Matthew's Spring this stone exists in great quantities, and is so very rich that it will burn equal to stone coal. Also, at the Brown Spring this rock is very abundant and very rich.

The stone about the two springs mentioned are broken, full of seams and chasms, and present an appearance that would justify the belief that they are thrown up by some great eruption. Most of the stones examined seem to be displaced, dipping in places very much. And where I have found this stone it is more or less impregnated with oil.

At the Matthews and Brown springs the oil and water issues through a fissure in the rock, and also small quantities of gas is emitted therefrom. At the Matthew's Spring there are two distinct oils, one black, of a thick nature, resembling tar; the other thin "whitish" color, showing all the colors of the rainbow. I gave these oils a careful examination, and I pronounce the thick substance to be lubricating oil, and the other to be the illuminating oil.

At this Spring, the Matthew's Spring Oil Company have an engine and tools, and have a number of men at work putting up the derrick, and other work, and will have an engine running in ten days; and if this company does not find oil in paying quantities, then there is nothing in indications, and I will acknowledge that my three years's experience in boring wells for oil, has learned me nothing. In fact, I believe that this spring, when tested, will be a young Pithole.

The surface of the country is quite broken, and thrown up in large mounds, with basins of fine farming land around them. In many places iron ore is seen, and now and then beds of silicious limestone. The fossils are very distinct and perfect in this stone. The whole northwestern portion of this county, as well as a portion of Rye county, shows very rich indications of oil, and it only needs developing to procure oil in large quantities. I would call the attention of those men who are paying thousands of dollars for a few feet of land in Pennsylvania and other parts of our country, to this part of Missouri. Here leases can be obtained on the most reasonable terms, and land can be bought cheap, and from what I have seen, I believe this country will prove as rich in oil as Pennsylvania, or any other country, and I shall prove my faith by works, and develope one or more of these springs.

THE EXPORT OF PETROLEUM.

The amount of crude and refined petroleum shipped from the port of New York from January 1st., 1865, to November 4th., inst., was 10,579,049 gallons, against 18,671,342 gallons during the same time in the year 1864, showing a falling off in our exports at this port of 8,092,293 gallons. This is a decrease of 43 per cent in ten months, and if the shipments should continue in like ratio until the end of the year, the decrease will amount to one half. The number of barrels sent to New York from the oil regions from the 1st of January, 1865, to this date, is 452,615, against 608,190 for the same time in 1864, showing a decrease of 155,575 barrels. A slight increase in the amount of shipments from the port of Philadelphia is counterbalanced by a corresponding decrease in the shipments from other ports, so that the above figures give a very correct idea of the condition of our foreign trade in this article under the manipulation of the last Congress.

This result has in nowise been brought about by a falling off in foreign demand. The prices abroad have been steady, and the latest foreign quotations, of 2s. 11d., and 3s. for refined oil, show a healthy condition of trade. The foreign consumers stretch forward to us a bountiful hand, but to reach it we have to run a guantlet of cormorants. On one side are strung an army of excisemen, marshalled under the Chinese policy of the Government, which lays tax upon exports, and on the other, a combination of railroad companies, who are now charging upon each barrel of oil sent from Titusville to New York a freight of four dollars and seventeen cents.

A slight analysis of what makes up the price of a barrel of crude oil, laid down in the city of New York, may serve for amusement at some future day, but just at this time is a grevious commentary on the evils of class legislation and licensed monopolies. The oil producer has been dubbed "a king," and we will say

The king pays his exciseman	$1 00
He pays his cooper for a new white oak barrel	3 25
He pays the teamster, for taking the new barrel to Pithole and bring it back full of oil	3 00
He pays coopers, dock charges, etc., at Titusville	25
He pays the Oil Creek Railroad Company for taking his full barrel to Corry	60
He pays the Atlantic and Great Western and New York and Erie, or Philadelphia and Erie roads for 340 pounds, or one full barrel from Corry to New York	3 75
He pays lightermen, inspectors, gaugers, commissions, etc., and gets off lucky with so little as	1 00
And he pays the producer, what is left out of 40 gallons of Pithole oil to-day worth 37 cents per gallon	2 13
	$14 80

In another view: Here is a producer who has an article, worth in the open market fourteen dollars and eighty cents, which certain enterprising individuals propose to deliver and sell for him at a charge of eleven dollars and sixty-seven cents. In other words, the oil producer is taxed eleven-sixteenths of all his income. Taking a somewhat interested view of matters, the producer now stands on his dignity and asks $4 50 for his oil at Pithole, and $7 per barrel on the creek. As long as he remains of this opinion, and prices are no better in New York, there is an end to shipments.

These facts need no commentary. With the continuance of Government and railroad tariffs, the time will soon come when it will pay better to run a theatre than own an oil well, or even to do the part of the Champion Jigger with the educated legs.—*Titusville Reporter*, November 18.

Petroleum Exported from the United States.—The comparative exports from the ports named, during 1864 and 1865 have been as follows:

	1864.—Gals.	1865.—Gals.
Boston	1,292.588	602,850
New York	18,707,628	10,481,271
Philadelphia	6,364,657	7,507,569
Baltimore	652,028	738,478
Total	27,016,901	19,330,168
Decrease	7,686,733	
Decrease from New York		8,222,357
Decrease from Boston		689,738
Increase from Philadelphia		1,142,912
Increase from Baltimore		86,450

Exports from the United States.—The following are the exports from the United States to foreign ports for the year ending June 30:

	1862.	1863.	1864.
Product of the sea	$3,987,298	$5,056,006	$4,221,214
Product of the forest	9,926,157	14,342,058	10,427,802
Product of agriculture.	138,171,984	180,681.626	150,467,802
Manufactures	25,066,000	40,889,573	37,416,271
Coal	887,117	993,309	1,208,128
Ice	182,667	169,757	278,127
Petroleum, crude and refined	1,539,927	27,839	10,782,589
Quicksilver	1,237,643	1,237,116	976,898
Gold and silver bullion	13,267,739	29,592,912	11,822,090
Gold and silver coin	17,776,912	44,608,529	38,651,472
Raw produced not specified	1,067,703	6,494,252	3,778,794
Total exports of Domestic Produce	$213,060,247	$324,092,867	$320,035,198

Petroleum in Alabama.—We are informed by Dr. Wm. Spillman, that the petroleum company of this city, have succeeded in striking oil in a location in North-Alabama, not far from Courtland. They struck a small quantity about thirty feet from the surface,—*Columbus (Miss.) Index*,

MINING.

END OF THE MARIPOSA ESTATE.

Samuel Bowles, Esq., the editor of the *Springfield Republican*, in a letter from California, gives this account of the present condition of Fremont's famous Mariposa estate. "But here, in Mariposa county, the interest has a different look, and affairs are in a desperate condition. There are in all ten quartz mills here all, or nearly all, on the Fremont estate, but only two or three are now running, and these with moderate results. The villages are decreasing in population; the best people are going away; viciousness of all sorts seems to be increasing, and highway robberies are of almost nightly occurrence. The great Mariposa Mining Company, formed in Wall street two years ago, with a capital of ten millions, a debt of two millions, and not a cent of ready cash—succeeding to Gen. Fremont's property and his style of doing business—has come to grief. Its most worthy superintendent and manager, Mr. Frederick Law Olmstead, who was beguiled out here under a gross misapprehension of the situation of affairs and the duties he was to perform, is going home disgusted, to resume more congenial occupation in the East. The sheriff has been brooding over the estate for six months, and its local creditors are running one or two of its mills and mines on a close economical scale—using up accumulated materials, but laying in no supplies—in order to obtain their claims. The ore now being obtained and thus washed returns from $7 to $10 a ton, which gives a small margin of profit. It is all a sad, vast ruin."

ENAMELED AMALGAMATING PANS.

Mr. Ramdohr, formerly of Austin, and Mr. Golding have started enameling works at Virginia, with the principal object of covering amalgamating pans with a coating that protects them from the corrosive effects of acids. They are now preparing six pans for the Manhattan mill in this city.

The *Virginia* (Nev.) *Union* says:—For a long time it has bothered the heads of our oldest and most experienced mill to discoverer some way to protect amalgamating pans from destruction by acids and the combination of base metals that eats and destroys the iron. Mr. Golding, after years of experimenting, discovered a combination that, applied to iron, and heated red hot, produces the most beautiful as well as durable enamel yet discovered, of any kind. Acids do not affect it in the least, and it becomes so hard that with a cold chisel one can hardly make an impression on it. The idea is to enamel amalgamating pans that are run in mills where the "dry" process is worked, and when acids are used that come in contact with iron. The result will be that amalgamating pans enameled will last two and three years, whereas they do not now last six months by the present way of working.

A NEW DISC MACHINE.

A French Engineer, M. Paulin Gay, has lately perfected a machine, on the disc principle, for sawing or cutting through the hardest rock in quarries and tunnels. Experiments have been made lately at the Conservatoire des Arts et Metiers of Paris, and the following is an extract from the report of M. Tresca, the sub-director, countersigned by general A. Morin, chief director, relative to the performance of this machine:—"The contrivance of Mr. Gay depends upon the new and special application of a principle, and consists of apparatus whereby a disc of lead penetrates vertically or horizontally into the stone, being impressed with a rapid circular motion, while powdered emery is applied to the edge of the disc by means of a small jet of water. The emery, as fast as it is applied, falls into a receiver, whence it is lifted to be replaced in the feeding hopper and used over again. The disc is mounted upon a shaft so as to move in a plane perpendicular to that axis, and is guided by friction wheels whereby its motion is steadied. The body of this disc is of wrought iron plate 4 millimetres thick, and is pierced all round the edge with a double row of elliptic holes, to afford passage for the melted lead which is cast upon the wheel to the thickness of 6 millimetres, and a total width of 7 millimetres. The wheel is put into motion by a machine or motive power, the strength of which is regulated by the diameter, and also by the nature of the stone to be cut, and, placed upon a moveable chariot on rails, it advances into the tunnel, resting on the floor of the heading. If a block of stone be required to be cut for building or other purpose, the machine is fixed while the block is pressed against the revolving disc by a counterpoise. For tunnel work M. Paulin Gay has an enormous disc 2 metres in diameter.

MINERAL PRODUCTS OF BELGIUM.

The Government of Belgium has just published some interesting tables on the commerce of that country last year. It results from these data that the imports and exports of iron, coal, etc., into and from Belgium in 1864 were as follows:

	Imports.	Exports
Coal and coke..... Tons	67,337.....	3,782,105
Rough and beaten copper..	2415.....	1,107
Iron, minerals.....	221,568.....	196,636
Rough pig and old iron....	9,572.....	25,967
Beaten, roiled, etc.....	1,822.....	172,723
Works in iron.....	765.....	6,383
Metals and minerals not specially tarified.....	135,634	02,752
Lead.....	5,191.....	7,252
Rough zinc.....	5,258.....	12,441
Rolled zinc.....	....	18,126

The quantity of coal exported from Belgium will be observed to have attained a very considerable total last year.

IMPROVED BLASTING POWDER.

Some interesting experiments have recently been made in Belgium, France, and Germany, with an improved blasting powder, specially intended for mining purposes, and recently introduced into this country by Messrs. Schaffer and Budenberg, of Buckau-Magdeburg and Manchester. The powder consists, as usual, of saltpetre, sulphur, and charcoal, but with the addition of certain vegetable and mineral matters, patented by one of the inventors, and is claimed to have two great recommendations—it leaves scarcely any smoke behind it, and its power, compared with the best blasting powder hitherto in use, is from 50 to 60 per cent. greater, so that its application could not fail to be attended with great economical advantage, whilst it would secure at the same time increased health to the miner, and the more speedy prosecution of the underground works, which would be no longer interfered with by the penetrating smoke which has heretofore been so general. The selling price of the powder would not be higher than that of the powder hitherto in use: at the same time scarcely one-half the weight would be required for each charge, whilst considerably greater effect would be produced. It has likewise the further recommendation, which has been wanting in several of the new powders recently introduced, that it is employed precisely in the same manner as ordinary powder, and that no greater danger attends its use in consequence of the patent material being added.

Amongst the more recent experiments are those which have been conducted during some months at the collieries at Frameries, Belgium, under the direction of Mr. Gille, the Government Mining Engineer, which have given results showing the new powder to be 50 per cent. stronger than that in general use. Mr. Ehrenberg, the representative of the inventors, conducted the experiments, which were made in the presence of the Government Engineers, who express the opinion that the principles laid down upon theory have been thoroughly demonstrated in practice. According to the instructions of the Minister of Public Works, Mr. Jules Gernaert, the principal mining engineer for the province of Liege, has made a report to the department, which, from the facts of the trials being comparative, are particularly interesting. Mr. Gernaert's report is too long to translate in detail, especially as the statements as to the dates and places of the experiments are of merely local interest. It will suffice to mention that three descriptions of powder were tried—that of Messrs. Schaffer and Budenberg; that of Messrs. Hillgers, of Clermont; and that manufactured at the Government factory at Wetteren.

The report of Mr. Gernaert states that the combination of materials composing the powder of Messrs. Schaffer and Budenberg is made with the view of obtaining slower combustion, and to secure the combustion of the gas and heat produced by the deflagration. This powder acts in the bore-hole in the manner of a lever, whilst the ordinary powder, exploding more suddenly, acts rather in the manner of a hammer, producing a shock more or less violent. The first experiments were made in free air, the powders being burnt in a closed chamber upon slabs of polished stone. The powder of Messrs. Schaffer and Budenberg gave an intense and brilliant flame scarcely any smoke or odor, and the combustion consisted in burning with but little noise, and as regularly at one point as at another; there were no sparks thrown off. The residue consisted entirely of whitened globules, and no carbonaceous deposit. Thus, the result of this experiment was perfect combustion, as is proved by the brilliancy of the flame, the absence of residue, and the small quantity of smoke. There was a total absence of the penetrating and sulphurous odour of the smoke of ordinary powder. The Wetteren powder, treated in the same way, deflagrated suddenly, and with noise; the smoke was pretty abundant, and carbonaceous residue remained upon the slab; no sparks. The combustion was evidently much more rapid than in the first experiment. With the Clermont powder the deflagration was less prompt, there was a thick sulphurous smelling smoke, an abundant residue, and a large number of sparks were thrown off. Here there was evidence of the elements entering into the composition of the powder being badly applied. The combustion was far from complete.

The second series of experiments consisted in practical blasting, carried on both at surface and underground; the rock operated upon at surface was calcareous, and of ordinary resistance. The trials proved that Messrs. Shaffer & Budenberg's powder produced considerable effect with very small charges; the dislocation extended to a great depth, without occasioning the useless projection of debris. The noise of the blast was scarcely perceptible, all that was heard was the dull rending of the earth; the tamping was blown out, the smoke was inappreciable, and all the gas resulting from the combustion was burnt within. The Clermont and Wetteren powders, submitted to the comparative tests, gave the results every day obtained with them. In the face of the results obtained and detailed in a tabulated appendix to the report, it was considered impossible "not to accord a great superiority to Messrs. Schaffer & Budenberff's powder, whem employed for quarry work." The results underground were equally satisfactory—the quantity of ground broken was very large (a charge of 140 grammes of the new powder produced a considerable better effect than 189 grammes of Clermont powder of ordinary quality, whilst there was an almost total absence of smoke and smell. Mr. Garnaert details the experiments, and concludes by remarking that by way of *resume*, with regard to blasting in the mines, there is cause to admit, from the experiments made under his direction, that Messrs. Schaffer & Budenberg's powder has given less smoke, and that less noxious, than ordinary powder; and that the new powder used under suitable conditions, considering the nature of the rock, the depth of the hole, and the weight of the burden, gives results more satisfactory than those obtainable with ordinary blasting powders. It appears that the whole of the experiments were made with the quality which the inventors designate "slow powder," and that its use does not necessitate any special or unusual arrangements.

IRON IN SPAIN.

New iron mines have been discovered in the neighborhood of Irun, for the working of which a special line of railway is to be constructed. The product of the mines will, it is estimated, reach 100,000 tons per annum.

AN OASIS IN NEVADA.

The Toiyabe and Shoshone ranges of mountains unite and form a curve in the shape of a horse shoe, on the inner side of which Reese river takes its rise, as well as its numerous tributaries. On one of these streams, nearly midway between the junction of these two mountain ranges, there is a beautiful little valley, about six miles long, known as Indian Valley. There are also many smaller valleys, watered by springs and tinny brooks, the latter of which abound in trout. On the outer side of this curve lie Ione—formerly called Smith Creek Valley—and Smoky Valleys, and the country generally presents the very abomination of desolation. Everywhere the eye encounters barren wastes of sand and alkali, covered only with the hileous sage brush. In the midst of this desert, and almost hidden from view, the traveller comes suddenly upon an exquisite little oasis, known as the Cloverdale Ranch, of some fifty or sixty acres in extent. The spot seems to have been touched by the wand of the enchanter. Springs of cool, sparkling water gush softly forth, and trickle musically along their course; grass of vivid green, and soft to the tread as an Eastern carpet; and luxuriant red and white clover exhales its delicious fragrance to the atmosphere, saturating the senses with pleasure. It is an emerald of purest hue set on the wrinkled face of nature. Animals are lured to the charming spot by its seductive vegetation, and rabbits may be seen frisking through its rich verdure in sportive gambols; even the horns of the wild mountain sheep are scattered around. The envious sand is encroaching remorselessly on this fairy domain, especially on the western side, and within a few years, unless kind fate prevents, this lovely spot will become as desolate and forbidden as the arid plain enclosing it.—*Reese River Reveille*, October 20.

IMMENSE CASTING AT TAE FORT PITT WORKS.

The Pitsburg *Chronicle* of Nov. 8 says:—The Fort Pitt Works achieved a great triumph in the way of heavy castings, having successfully cast an immense fly-wheel, weighing about forty-two tons, for Messrs. Zug & Co's rolling mill. The mould was made in the rolling mill (there not being sufficient space in the Fort Pitt Works for the purpose), and the metal was run from the furnaces in iron conduits, through the open air, to the mould, a distance of about one hundred and sixty-eight feet. The preparations for the casting have occupied some two weeks, the mould being made from cores instead of the usual wooden patterns. The metal, amounting to about forty-eight tons, was melted in two furnaces, each one containing twenty-four tons.

The furnaces were tapped simultaneously, and in less than twelve minutes the mass of metal required for the casting had flowed into the mould. The running of the metal, through the open air, such a distance, had never been attempted before, and the result of the experiment was eagerly watched. But, as with almost everything else at empted by the firm, the experiment has been a complete success.

The fly-wheel is supposed to be one of the largest if not *the* largest in the world. It is seventy-nine feet five inches in circumference, and about twenty-five feet in diameter, and when finished will weigh about forty two tons. There are ten arms, each eight inches wide by eleven inches deep. The hub is thirty inches long, and the eye forty-two inches in circumference; the rim is eigh inches thick and eighteen inches wide.

How a Successful Copper Company Pays.—The Pittsburg and Boston Mining Company of the Keweenaw Point copper district of Lake Superior, on a paid in capital of $110,900, has paid cash dividends amounting to $2,100,000. That is on a paid in capital equal to $5½ per share, it has paid out dividends equal to $105 per share. In addition to this, the company has available assets paid for out of the profits of its mine, equal to a money cost of about $750,000.—*U. S. Railroad and Mining Register.*

THE USE OF WATER AS FUEL.

An interesting discussion was held at the New York Association for the Advancement of Science and Art, at the Cooper Institute, on the Use of Water as Fuel. Dr. William E. Hagan, of Troy, N. Y., has recently been conducting a series of experiments to determine whether steam could be advantageously used as an aid to combustion. The subject was brought before the Association at their last monthly meeting, and a committee appointed to test the merits of Dr. Hagan's plan. The committee reported through the chairman, that although they had been testing the matter by experiment for a week, that inasmuch as the apparatus used by them was not adapted to determine with extreme accuracy the exact difference made in the combustion of coal by the introduction of the steam, they had not prepared a formal report of the results obtained. The chairman of the committee, Dr. Leonard D. Gale, however, gave a very interesting informal account of the experiments made, and the results thus far obtained. The first object which the committee sought to obtain being the value of the discovery for domestic purposes, they had conducted their first experiments with an apparatus much resembling a common cooking stove; in fact, differing from one only in having attached to it in front a thick piece of cast iron, with a cavity in the centre very much like a common "water back" to a stove. On the top of the apparatus were four kettle holes, in each of which a kettle of water was placed, while another vessel of water was placed in the oven behind. The amount of heat produced during the various experiments was determined by the weight of water evaporated from the vessels. The experiments were conducted for three days by burning coal in the apparatus in the ordinary manner, the amount of coal placed in the stove being carefully weighed each day, as also the amount of ashes and residuum left and the amount water evaporated. For the other four days a small stream of water was admitted into the central cavity of the hollow iron front above described, which being converted by the heat of the fire into steam, passes through a series of small openings into the centre of the burning coal. As in the experiments, the amount of coal consumed and of water evaporated was carefully determined and noted. The nett results of the seven days' experiments showed on an average 3 82-100 lbs. of water, the same coal burned in connection with the steam would evaporate 5 49-100 lbs. of water per pound of coal, the proportion being as 50 to 75. In other words, that the use of the stream of steam, in connection with the coal, increased the available heat obtained from the latter about 50 per cent. We give the figures in gross, although Doctor Gale gave them in detail at considerable length. As in these experiments a great part of the heat was necessarily lost by radiation from the exposed surface of the stove, it was impossible to determine accurately the exact amount of increase of heat caused by the presence of the steam, but enough was shown to demonstrate that the subjects is well worthy the attention of economists. Dr. Hagan stated that a locomative was now running on the New York Central Railroad, in which, by the use of his system, 30 lbs. of water were converted into steam by an average consumption of 1 lb. of coal. This company are now applying the principle to six more of their locomotives, and are about to construct 20 others, built expressly to include this principle. After some discussion the further consideration of the subject was again referred to the committee, who were instructed to examine it thoroughly, and report at some future meeting.—*U. S. Railroad and Mining Register.*

Piston Packing.—Mr. Edwin Kendall, of New Lebanon, New York, proposes, instead of usual metallic rings, to provide a brass spring, coiled in continuous circles, and inserts it between the heads or flanges of the piston. It is claimed that this method of packing a steam piston is cheaper, more expeditious, and less liable to get out of order than that generally used, and requires no attention after it is put in until it is worn out.

THE PITCH LAKE OF TRINIDAD.

This lake covers an area of ninety-nine square miles, and is of very great depth. "The bitumen is solid and cold near the shores of the lake, and gradually increases in temperature and softness toward the centre, where it is boiling. The ascent from the lake to the sea, a distance of three-quarters of a mile, is covered with a hardened pitch, on which trees and vegetables flourish, and about Point la Bray, the masses of pitch look like black rocks among the foliage." Mr. G. P. Wall describes the lake as yielding three kinds of asphaltum: "1. Asphaltum glance, which is hard and brittle, of an intensely black, brilliant lustre, and conchoidal fracture. 2. Ordinary asphaltum, of a brownish-black color, containing from 20 to 35 per cent. of earthy admixture, and a considerable proportion of water, and possessing the property of plasticity, which it gradually loses on long exposure to the sun and atmosphere. 3. Asphaltic oil, occurring associated and diluted with water, but appearing, when concentrated, as a dense black fluid with a powerful bituminous odor. If collected in an open vessel, the more volatile part of this oil evaporates after a few months, leaving a solid black substance, of similar appearance and analogous properties to asphaltum glance."

SUBTERRANEAN STREAM UNDER THE EAST PENNSYLVANIA RAILROAD WORKSHOPS.

The editors of the *Reading Daily Times*, in a recent notice of the new workshops of the East Pennsylvania Railroad Company, thus notice a subterranean lake, or cistern, that was discovered on the premises of the company:

"While going over the works, we were particularly struck with a description of the well which supplies the water for the different shops, engines, etc. It appears that in digging this well, a very hard bed of rock had to be perforated. This was succeeded by softer stone, until the bottom of the intended well fell out! This revealed to the workmen a subterranean cistern, or lake, the water of which was as pure as crystal and the supply inexhaustible. No bounds can be found to its southern termination, and the conclusion arrived at is, that there exists a lake of some dimensions, over which the workshops are erected.

COPPER AND OIL SHARES SOLD AT AUCTION.

At the auction sale by Messrs. Thomas and Sons at the Exchange, on Tuesday, Nov. 28, quite a number and variety of stocks were sold, including the copper and oil stocks named below, at the prices given:

1 000 shares Penn Mining Co., 1c	$10 00
1,000 shares Coulter Copper Co., 1c.....	10 00
1,270 shares Mammoth Oil and Coal Co., 2½c..	31 75
100 shares Ross Oil Co., 25c.....	25 00
500 shares Logan Oil Co.. 4c.....	20 00
1,000 shares Mutual Petroleum Co., 4c	40 00
200 shares " " " 2c.....	4 00
275 shares Commonwealth Oil Co., 3½c	9 62

U. S Railroad and Mining Journal.

Mahogany Railway Sleepers.—From Western Australia we learn that an engagement has been entered into to deliver on board a ship at Freemantle, 600 loads of mahogany sleepers for the Indian railway, at £3 13s. 6d. per load. Millions of acres in the colony produce a timber which no other part of the world produces, and it is virtually indestructible by white ant and sea worm.

Lead Works in America.—At the last census there were in the United States 28 lead-smelting establishments, employing 203 hands. The capital invested is $286,922; cost of raw material, $988,-561; cost of labor, $58,260; annual value of products (ending June 1,) 1,094.122 dollars, tons of pig lead, 10,395.

UTILISING BLAST-FURNACE GASES.

The plan now carried out for more than a year past by Mr. Addenbroke, at the Rough Hay Furnaces, Darlaston, consists in forming a ring of openings in the walls of the furnace all round the neck, at a depth of only 4 feet below the furnace top, through which the gas is drawn off by the suction of a chimney into an external flue surrounding the neck of the furnace, whence the descending gas main conveys the gas to the steam boilers and hot blast stoves, where it is consumed. The gas openings are formed by a series of cast iron segments or boxes, built into the wall of the furnace flush with the lining, each casting having an inclined opening through it one foot high, sloping upwards and outwards into the neck flue. The materials in the furnace mouth are kept charged up to about 3 1-2 feet above the top of the gas openings in ordinary working: and the opening of the gas-valve which covers the descending gas main is so regulated that under no circumstances is the whole of the waste gas drawn off from the furnace, but there is always a small quantity of gas escaping through the materials above the gas openings, and burning out at the open top of the furnace. This precaution is necessary to prevent the risk of any air being drawn down by the chimney through the materials in the furnace top; and also in order to ensure the due preparation of the materials charged, by drying and warming them in the furnace top before they descend lower into the furnace. At the same time all excess of gas produced by the furnace beyond the quantity drawn off through the gas openings escapes with perfect freedom at the furnace mouth, the same as in the present ordinary open topped blast furnaces where the waste gas is not utilised.—*London Mining Journal.*

A NEW KIND OF GALVANIC BATTERY.

M. Bultinck, of Ostend, has communicated to the Academy of Sciences, a note on the use of magnesium instead of zinc as the positive element of voltaic batteries. In order to compare the electro-motive force of magnesium with that of zinc, he employed two pairs of wires, one pair consisting of a wire of copper and one of zinc, and the other pair of a wire of silver and one of magnesium. On plunging the first-mentioned pair of wires into distilled water, having first connected them with a multiplying galvanometer, the needle of the galvanometer, at the moment of immersion of the wires, moved 30 degrees, and after the immersion had lasted five minutes, still marked 10 degrees. On similarly treating the silver and magnesium pair of wires, which were of exactly the same dimensions as the copper and zinc pair, at the moment of immersion the needle of the galvanometer deviated 90 degrees, and five minutes after immersion it remained stationary at 28 degrees. Having thus found the electromotive force of a silver and magnesium couple to be three times that of a copper and zinc couple, M. Bultinck became desirous to construct a large battery with magnesium as the positive element, but not being able, for the moment, to obtain magnesium in any other form than that of thin wire, he had to be content with making a "galvanic chain," of the kind associated with the name of M. Pulvermacher. Having constructed such a chain of silver and magnesium, he found that when simply moistened with pure water it would produce all the effects the production of which by an ordinary Pulvermacher's chain requires that the chain be moistened with either a saline or an acid solution. We knew previously that magnesium possesses greater electromtive force than any other known metal capable of being obtained in quantity; the new fact brought to light by M. Bultinck is that a battery in which magnesium was the positive element would not need an acid to excite it, but could be excited by water only.—*Chemical Gazette.*

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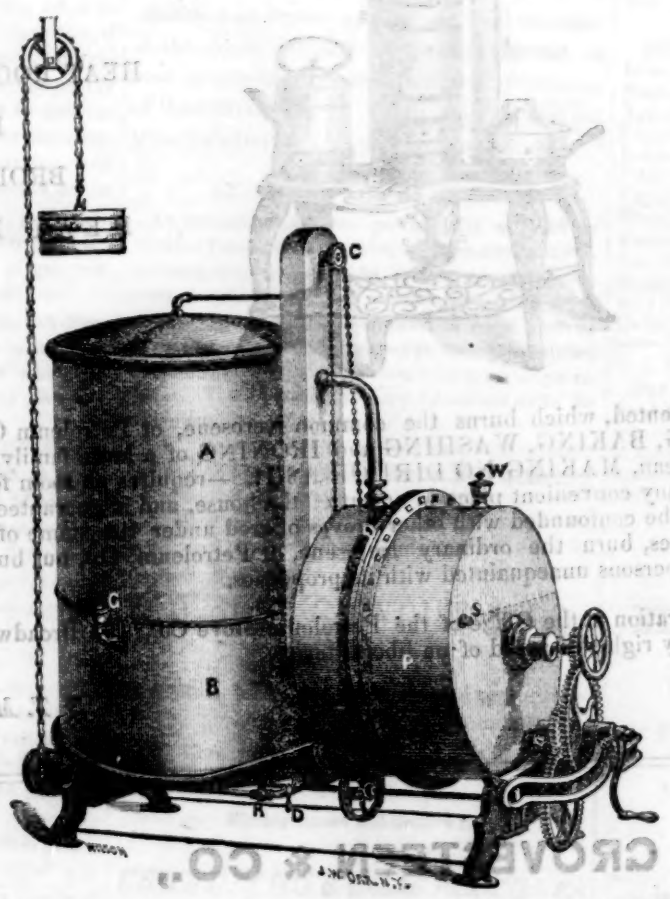
THE GAS GENERATED BY THIS MACHINE

Is a mixture of the vapor of hydro-carbon with common air. The mechanical devices employ d are such as, from a long experience and critical examination into the nature of the elements brought into use, seem best adapted to secure a certain and satisfactory result. Gasoline, the liquid employed, is the more volatile portions of Petroleum, of a specific gravity of 0.6587. This liquid exposed to the action of this machine is vaporized, and a close mechanical mixture of the vapor with common air is effected. The value of the gas produced, its permanency, its illuminating quality, and freedom from liability to condensation, depend almost entirely upon the perfect and uniform character of this mixture. Hence the great importance of mechanical means adapted to secure all the conditions requisite in a Portable Gas Machine.



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☞ The public are invited to witness its operations at our store. GASOLINE will be supplied by us, at market prices, or may be obtained from the various other sources of supply now going into operation.

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For Wet Meters, Gasoline Machines, Hydraulic Presses, &c.

We warrant our Glycerine free from acid and not to corrode the Meter metal, or to congeal or freeze at a stated temperature—also, not to evaporate to any extent. The advantages and savings derived from the use of our fluid can be testified by many Gas Light Companies which we have supplied. We only refer to the certificates of H. J. Miller, Esq., President of Cincinnati G. L. and Coke Co., and Dr. J. Lawrence Smith, Professor of Chemistry in the Louisville College, and President of the Louisville Gas Co.

HARTMAN & LAIST,

Office No. 71 Main street, Cincinnati —Chemical Works on Providence st. and Miami Canal, near Findlay st.

CERTIFICATE.

Office Louisville Gas Co., Louisville, June 28, 1865.

This is to certify, that the Louisville Gas Co. have used for about two years, the Glycerine prepared by Messrs. Hartman & Laist of Cincinnati, in their Wet Meters, and have in all instances found it to give most perfect satisfaction. Prior to the use of the above Glycerin, we had employed that manufactured by other parties, and we consider H. & L.'s superior to any we used.

J. LAWRENCE SMITH, President.

Office Cincinnati Gas Light and Coke Co., July 7, 1865.

This will certify, that Messrs. Hartman & Laist of Cincinnati, furnished this Company with Glycerin for Wet Meters some two years since. It has proved very satisfactory, having resisted the action of frost during two winters and evaporating not more than six per cent. per annum, as guaranteed by them. The standard being, for density, 15 deg. Beaume's scale. They were the first to introduce it practically to this Company. H. J. MILLER, President.

☞L. BRUCKMAN, 107 Warren street, up-stairs, Agent for New York.

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For Filling Wet Meters,

AND OTHER PURPOSES.

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We have been engaged in Manufacturing Glycerin the past 8 years, and from our advantage in material and the large amount we make, are enabled to offer it lower than any manufacturer in this country. Finding the wide range that Glycerin would assume in Pharmacy, the Arts and for mechanical purposes, we have entered into the manufacture of articles adapted to the various uses and are now prepared to offer it adapted to every purpose for which it can be used at less than any article now in competition with it. We annex the following letter from S. S. Stratton, Esq., to show practically its advantages.

OFFICK OF THE COVINGTON GAS-LIGHT CO.
COVINGTON, KY., Feb. 18, 1864.

MESSRS. W. J. M. GORDON & CO.:

Dear Sirs,—It affords us great pleasure in testifying to the superiority of the Glycerin Fluid purchased from you for filling the Wet Meters now in use by the Covington Gas-Light Company.

The difficulty of finding a non-evaporating and anti-freezing mixture for Wet Meters, has, in my opinion, been overcome by the use of your Glycerin Fluid.

I have had it in constant use for the past four months, and during that period the thermometer has ranged as low as 14° below zero, and after careful examination, I have found the fluid in the same condition as when first put in the Meters, and without the slightest discoloration.

Its non-evaporating quality does away with the hitherto unavoidable expense of filling the Meters monthly, and renders Wet Meters no longer objectionable.

In fact, I can cheerfully recommend it as being cheaper and better than any other Fluid or Mixture now in use.

Very respectfully,

S. S. STRATTON, *Sup't Cov. Gas Co.*

The following Gas Companies are using our Glycerin, to whom we refer—

Auburn, N Y—Covington Ky—Portsmouth, O—Springfield, O—Newburgh, N Y—Ann Arbor, mich—Cincinnati, O—Portsmouth, N H—Xenia, O—Richmond, Ind—Annapolis, md—Dayton, O—Painesville, O—Zanesville, O—Rahway, N J—Baltimore, md—Davenport, Iowa—Manchester, N H—Urbana O—Boston and Sandwich Glass Company—Buffalo, N Y—Philadelphia, Pa—Ripley, O—Piqua, O, —Terre Haute, Ind—Memphis, Tenn—Keokuk, Iowa—Pomeroy, O.

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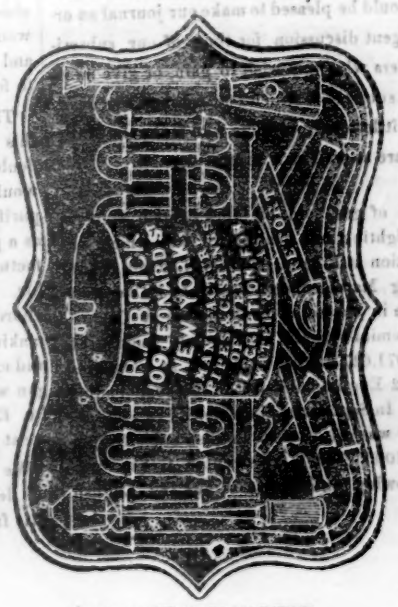

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The Mining and Petroleum Standard

AND

AMERICAN GAS-LIGHT JOURNAL,

PUBLISHED ON 2D AND 16TH OF EVERY MONTH.

JAMES W. BRYANT, DR. C. W. TORREY, } Editors.

SATURDAY, DEC. 16, 1865

☞ Our subscribers would confer a favor upon us by remitting *checks, or Post Office Money orders*, as we are frequent losers by money sent by mail.

TO GAS BURNER MANUFACTURERS AND GAS FITTERS.

We have discovered a considerable variation in the thread of the screw on gas burners from different manufactories. It is very important that there should be perfect uniformity in them, and we will thank Manufactures or Gas Fitters to write us what is the proper standard, and we will publish it for general information.

☞ We should be pleased to make our journal an organ of intelligent discussion for those of our subscribers and readers who may wish to gain, or give information on the subjects to which our columns are devoted. We solicit letters from those who make the study of gas a pleasure as well as a profession.

The amount of gas sold by the Belgian General Company for lighting and heating by gas—which has works in operation at Prague, Tournai, Louvain, Charleroi (including Marchienne-au-Pont), and Chemnitz while others are in course of construction at Catana, Sienna, and Rimmini—in the year ending August 31, 1865, was 145,971,627 English cubic feet, as compared with 136,082,002 English cubic feet in the year ending Aug. 31, 1864. In September, the quantity of gas sold by the company was 10,703,826 English cubic feet, as compared with 10,339,144 English cubic feet in September, 1864, showing an increase of 364,182 English cubic feet..

A NEW METHOD OF GAS MANUFACTURE.

We have received a pamphlet entitled, "The Chemistry of Illuminating Gas, and a new method of Manufacture," popularly explained by Dr. W. Elmer.

In common with many others, we have been anxiously waiting for the last year or more, to learn the result of the tests and demonstrations that were being made according to the method of gas manufacture, known as the "Elmer Process."

We have now before us a full explanation of the method, from Dr. Elmer's own writings, which will doubtless be read attentively by all interested in Gas Companies.

The Doctor claims that by his method of gas making a gain of fifty per cent. in volume over the old method, is obtainable, while the luminosity of the gas is also superior. This gain is based upon the theory that by absorbing the oxygen from the volatile products of the coal a re-arrangement of the elements, hydrogen and carbon, takes place, so as to form illuminating gases, instead of gas and coal tar, as is the case in the ordinary process: or in other words, no coal tar is formed by the new process, but the entire volatile products of the coal are converted directly into permanent gases. A gain of twenty, or even ten per cent, would be quite sufficient to warrant the adoption of the new process by all the gas companies, but, if the gain be really fifty per cent. it would produce a perfect revolution in the manufacture of illuminating gas, the world over.

The statements set forth by Dr. Elmer in his pamphlet, are substantiated by the reports of able chemists and engineers. That the coal tar produced in the manufacture of gas by the ordinary process, holds as much illuminating materials, or nearly so, as exists in the gas obtained, is a fact which no one can doubt, and that if the elements forming coal tar are really converted into gas by the new process, then there certainly ought to be a gain of nearly one hundred per cent., instead of fifty, as stated by Dr. Elmer.

Now, one of these two cases must be true, that either the whole of the volatile products of the coal, are not converted into gas by the new process, and consequently some coal tar formed, or the gain would be much more than fifty per cent. Indeed the tables in the reports of the engineers show a much larger gain than stated by Dr. Elmer. It may, however, have been the object of the Doctor, to make only such statements as would be realized in a practical working of the new method in the large way by regular gas works, where exact results cannot be expected; if this be the true version of the case, then all will be satisfied, that for once at least, an invention has come fully up to the claims made in its behalf.

It appears that the gain in the manufacture of gas by the new process, is effected by the employment of metallic zinc, placed in the upper retorts, where the volatile products given off from the coal in the lower retorts by distillation, are brought in contact with the zinc, which under high heat becomes volatilized, and absorbs the oxygen present, leaving the hydrogen, that would otherwise unite with carbon, to form coal tar, and with oxygen to form water, to unite with carbon, to form permanent gases.

The great objection to the employment of zinc for this purpose, with us, has been, that while it would doubtless absorb the oxygen present, the oxide formed would become a burden to the gas manufacturer. To purify the oxide of zinc so as to render it marketable as a paint, would be instituting a new branch of manufacture in gas works, which would be hardly practicable. If again the oxide could be cheaply reduced by charcoal, and used continuously in the process of gas making, that too would be attended with some trouble and expense, but if the oxide can be reduced by hydrogen without removing it from the retorts as stated by Dr. Elmer, in that case all objections to the use of zinc are at once removed.

We shall watch the progress of this improvement, as it is developed in large gas works, and report the results from time to time in the Journal.

OHIO MUTUAL PETROLEUM CO.

We are pleased when we look over the multifarious list of Petroleum companies that are organised now a-days, to find at the head of some of them men of sterling integrity and worth. Such an organization is the one mentioned below, and to which we call especial attention.

The Eastwood flowing well, owned by the N. Y. and Ohio Mutual Petroleum Company, on the Joe Davis farm, near Mackburg, continues to produce steadily and well, yielding in the neighborhood of 40 barrels of good, light oil daily. The superintendent of this company, Mr. S. S. Eastwood, is a quiet, hard working, energetic man, and not giving to "blowing," though his well is sometimes. The company are so well pleased with his management, and the fine result of his steady perseverance, that they have just made him the handsome present of $1,000. The Vice President of the company, L. A. Osborn, Esq., has made a visit to the oil fields of Duck Creek, and is highly pleased with the prospect. He has located another well on the Joe Davis farm, and one on the Warren farm, not far distant. The company will also continue operations on Paw Paw.—*Washington O. County News.*

An artesian well is being sunk by Chauncey Rose, Esq., of this city, in the rear of the "Terre Haute House." The spring water here is so strongly impregnated with lime, as to be unfit for household use, and the object of Mr. Rose is to obtain soft water.

The drill for some time past has been going down some three or four feet each week, and has reached the depth of 352 feet. The salt water which now flows to the surface, has been tested and makes an excellent quality of salt. The workmen have suspended operations for the present season. Mr. Rose has now a steam engine on the premises, with which he will resume operations early in the spring.

The New York Mercantile Journal.—We welcome weekly to our table, this ably conducted and ably edited sheet. Its columns contain a variety of matter which is always both instructive and interesting to all who read, while its price lists, embracing almost every branch of trade, are invaluable to the man of business—here he learns the ruling prices of all the commodities that enter into trade, from the most reliable sources, and here he finds chronicled the events of the day. We commend this sheet to all who require a "map of busy life," with the fullest confidence that it will bear us out in our commendation.

This paper is published at No. 2 Franklin Square, and 352 Pearl street, at $3 per annum.

CUTTING METAL.

An improved implement for cutting pipes and bars of metal has been invented by Mr. Wolstenholme, of Redclyffe, Lancashire; it consists of a revolving circular cutter, upon a suitable slide. The pipe or bar to be cut is securely held in a vice or otherwise, and the circumference of the cutter is brought against the pipe or bar by means of a screw passing through the lower end of the slide; the implement is then turned round by the handle forming the continuation of the screw, and the cutter is set up by the turning of the screw, by this means the cutter gradually penetrates into the metal until the pipe is cut asunder, or the metal bar is sufficiently indented to enable it to be broken.

VARNISH FOR METALS.

For this purpose Mr. H. A. de Brion, Jr., of Wells beck street, proposes to employ a compound of 45 ounce of benzoin in 1 gallon of alcohol, or methylated spirit, the dissolution being made with a slow heat, and the compound filtered. To remove the varnish he employs collodion 4 parts and alcohol 1 part, mixed, and to remove the collodion he uses alcohol 18 parts and ether 2 parts. The varnish is suitable for silver plate and similar metal.

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☞London Mining Journal, please copy.

NEW YORK MINING EXCHANGE.

NEW YORK, Dec, 15, 1865.

	Bid.	Asked.
Copper Stock.		
Aztec	7	
Bedford	1	1
Boston	4⅜	5
Caledonia, A. P.	10	12
Canada	3¼	4
Carp Lake	3	5
Central	—	—
Columbian	—	24
Copper Falls		—
Clifton	—	61
Dacotah	—	5½
Derby	⅜	1⅜
Douglass	—	—
Evergreen	18¾	20
Flint Steel River	12	13¾
Frue	2¾	5
Grand Portage	—	—
Hancock	12¾	14
Hamilton	—	6
Hilton	5	6
Hudson	1	2
Huron	32	33
Indiana	8¾	9¼
Isle Royale		
Keweenaw	—	6
Knowlton	7	10
Lafayette	1	2
Manhattan	—	—
Mendota	—	—
Merrimac	4¾	5¾
Minnesota	33	37
New York, A. P.	2	3¼
N. J. Consolidated	4	4¾
Norwich	—	6
Ogima	5	6¼
Ontonagon	3	4
Penn	—	11¾
Providence	1¾	
Quincy	96¾	
Reliance	1¾	
Rockland	12¾	
Superior	8¾	
Sharon liquidated	—	

	Bid.	Asked.
Gold Stock.		
Benton	1	1¾
Consol'd Gregory		28⅞
Corydon	—	3
Gunnel	3¾	4¾
Great Western	—	8
Hope	—	9
Isaac's Harbor	¾	⅞
Manhattan	—	9
Mariposa	44	44¾
Montana	⅜	1
New York	2⅜	3
N. Y. & Nova Scotia	⅜	1¾
Quartz Hill	9¾	10
Quicksilver M'g Co	81	82
Rocky Mountain	—	10⅜
Smith & Parmelee	7	12
Coal Stocks.		
American	98	100
Ashburton	—	25
Central	62	65
Cumberland	61	62
Del & Hud. Canal	206	208
*Hampshire & Balt.	104	110
Pennsylvania	213	215
Lead Stocks.		
Bucks County	⅛	⅜
Clute	1⅜	1⅞
Erie	—	20
Macomb	3¾	5
Plancentia Bay	1¾	1¾
Sussex	⅜	⅞
Wallkill	3½	6
Iron Stocks.		
Copake	8	10
French Creek	⅜	1
Teal Lake	4¾	6
Miscellaneous.		
Rutland Marble	17	20

* Ex. div.

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Experimental Trial of Cameron Coal Company's Coal, from "Mount Hope" Vein,

Made at the Philadelphia Gas Works, March 20th, 1865, Charges, 100 lbs. each.

Pounds of Coal carbonized	3,600
Cubic feet of Gas made	16,285
" " per lb. Coal carbonized	4 52-100
Coke made, in pounds	2,430
" in bushels	63
Tar made, in gallons	22
Illuminating power, 5 feet Batwing—14 44-100 Candles.	

No. 34 Pine Street, New York, April 5, 1865.

George Warren, Esq., President Cameron Coal Co.:

Dear Sir—The analysis of the Coal I received from you, as from your "Mount Hope" vein, results as follows:

Volatile matter	26.00 per cent.
Carbon (of Coke)	69.40 "
Ash	4.60 " —100.00

The volatile matter consists of crude oil, ammoniacal water, and gas. The crude liquor product amounted to 14 gallons per ton; the illuminating Gas, 4,522 cubic feet per 1,000 lbs. coal. The Coal weighs 65 lbs per bushel. The Coal is remarkably free from sulphur, and the Gas of excellent quality.

Yours, very truly,

(Signed,) A. K. & S. C. EATON, CHEMISTS.

Manhattan Gas Light Co., New York, April 24, 1865.

Mr. George Warren, President Cameron Coal Co.:

Dear Sir—The result of the examination of the Coal from the "Mount Hope" vein is as follows:

One ton (2,240 lbs.) yielded 9,500 cubic feet of 13 75 1-0 candle Gas, and 40 bushels of coke, weighing 1,550 lbs. The Coke has a good appearance, and burns very well, with but little hard clinker. Had the Coal been fresh mined, the result would have been better.

Analysis of the Coal.

Volatile matter	29.00 pr. ct.
Fixed carbon	67.20 "
Ash	3 80 " —100,00

Analysis of the Gas.

Olifiant Gas, hydro carbon vapors	4.75 pr. ct.
Carbonic oxide	5.75

Yours very respectfully,

(Signed) JOS. A. SABBATON, ENGINEER.

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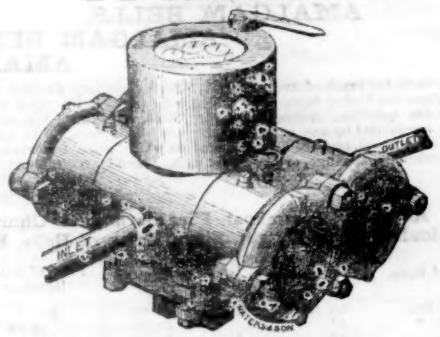

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275 "	42	69 00	18 00	87 00
375	36	94 00	22 00	116 00
450	44	112 00	25 00	137 00
600	02	150 00	30 00	180 00
750	80	188 00	35 00	225 00
1,000	64	250 00	42 00	292 00
1,200	48	300 00	45 00	345 00
1,400	50	350 00	50 00	400 00
1,600	52	400 00	54 00	454 00
1,800	55	450 00	60 00	510 00
2,000	58	500 00	62 00	562 00
2,500	60	625 00	72 00	697 00
3,000	63	750 00	85 00	835 00
3,500	66	875 00	87 00	962 00
4,000	69	1,000 00	100 00	1,100 00
4,500	72	1,125 00	113 00	1,238 00
5,000	75	1,250 00	125 00	1,375 00

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200	22	50 00
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It has much more body than red or white lead. It is warranted perfectly water and fire-proof and to withstand a greater heat on metals, without scaling, than any other paint in use.

It is a perfect cover for all kinds of iron, tin, or wood-work, out-houses, and canvas coverings. revents and arrests the corrosion of metals, and is not affected by the action of salt, gases, acids ammonia.

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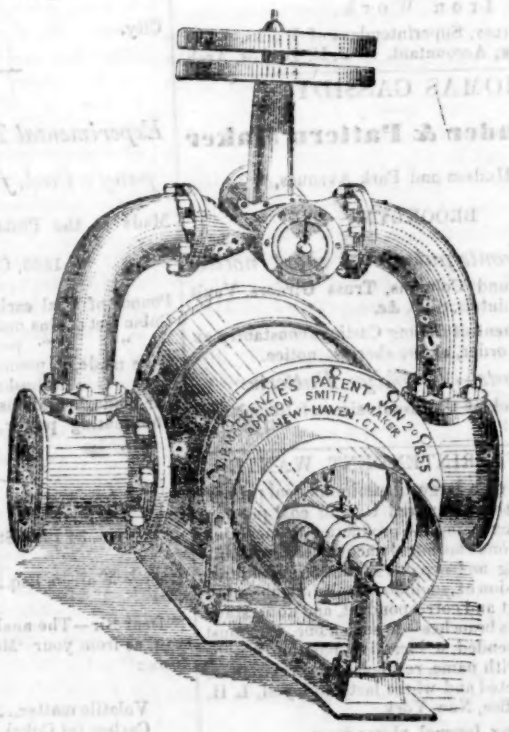

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One-half hour's instructions is sufficient to enable any person to work this Machine to their entire satisfaction.

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Conically Slotted Solid Wood Sieves
FOR PURIFIERS.

The Conically Slotted Solid Wood Tray or sieve was patented 21st October, 1862, and all persons are cautioned against purchasing them of any other person except the subscriber. The following companies are now using these trays.

Manhattan, New York,
Metropolitan,
New York
Albany,
Troy
Brooklyn, L.
Williamsburgh,
Citizens
Baltimore Md.
Louisville, Ky.
Chicago, Ill
Cambridge,
And numerous others

Orders received by mail or otherwise.
JOHN L. CHEESMAN.
147 Avenue C New York City

WEST'S IMPROVED PUMPS, the most Simple, Durable, and Powerful, and the Cheapest in use.
J. D. WEST & CO.,
No. 40 Cortland street,

JOSEPH LENNIG,
1615, 1617, and 1619 Francis St.,
Above Ridge Avenue, Philadelphia, Pa.,
MANUFACTURER OF
WET & DRY GAS METERS,
STATION, SHOW, & EXPERIMENTAL METERS,
Photometers, Pressure Registers, Indicators, and Gauges, Governors, Meter Provers, Centre Seals, Fluid Gauges, &c.
GAS APPARATUS
Of the most reliable and approved construction manufactured and on hand at the
UNION GAS METER WORKS.

D. PARRISH, Jr.,
GAS ENGINEER
And Contractor for Coal or Oil Gas Works.
Estimates given for Gas-Works, Gas-Holders, or any Gas Apparatus.
205 1-2 Walnut st., Philadelphia, Pa.
Box 1956, Post Office.

To Manufacturers of Petroleum Gas.

For sale, Parrish's Patent Gas and Air Mixer, adapted to all works using Petroleum or other oils, by which rich Petroleum Gas is mixed, after it leaves the holder, with a proper proportion of air, giving it the greatest illuminating power, without smoke, through any burners. The apparatus being attached to the outlet pipe, requires no alteration of the works.

Apply at the Gas-Works of St. Nicholas Hotel, No. 63 Mercer st., N. Y., where one can be seen in operation; or address D. Parrish, Jr., St. Nicholas Hotel, New York city, or No. 1416 Arch street, Philadelphia.

TO GAS COMPANIES.

THE UNDERSIGNED DESIRES TO undertake the supervision of several small Gas-works, to visit and examine them as often as may be necessary; to obtain and inspect their coal, castings, fire-brick, and other materials; and to manage their general business in such a manner that they shall be under such supervision as is now attainable in large works, at much increased cost. Also, to advise as general Consulting Engineer and expert in practical chemistry.

CHAS. M. CRESSON,
Late Asst. Engineer of the Philadelphia Gas-works
417 Walnut st., Philadelphia.

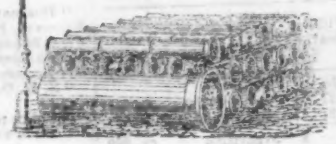
THE AUBIN GAS-WORKS COMPANY,

Of Albany, N. Y.,

Now contract their works to make 10,000 feet of good Gas from 2,000 pounds of *hard* wood and 40 gallons of kerosene tar, *before payment can be demanded*; and the charcoal is worth the cost of the wood.

Many Village Gas Companies can be referred to.

R. D. WOOD & CO.,
MANUFACTURERS OF
CAST-IRON PIPE, RETORTS, &c
Office, 400 Chestnut Street,
PHILADELPHIA.



Carrington & Co.'s GENERAL PURCHASING AGENCY,

In Connection with all the Expresses,

No. 30 Broadway,
NEW YORK.

Established 1854.

Purchases to order ANY article wanted from New York, (or from Europe,) for ladies' or gentlemen's use or wear,—comfort or luxury—from a cameo to a cashmere—a sea ring to a steam-engine.

Goods purchased at current City prices, and forwarded by Express, or as directed.

Commission, Five Per Cent.

Remittances, with orders, can be made by Express if preferred, as all Express Agents will take orders, receipt for and forward funds, and see to return of Goods.

SPECIAL CIRCULAR.

The Adams Express Company, appreciating the need of a capable medium connecting with the various Express Lines, through which personal and other orders for goods from this city, can be satisfactorily supplied, do recognize CARRINGTON & CO.'S GENERAL PURCHASING AGENCY as such a medium for filling orders for every description of goods wanted from New York, and commend it to the attention of the public, and of our general and local agents, recommending our agents to extend to it all reasonable aid, by facilitating the distribution of its cards and circulars, and making known the advantages it affords.

ADAMS EXPRESS CO.
By W. B. DINSMORE, Prest.
NEW YORK, June, 1864.

We cheerfully concur in the above recommendation of the Adams Express Company.
AMERICAN EXPRESS COMPANY,
By HENRY WELLS, Prest.
UNITED STATES EXPRESS COMPANY,
By D. N. BARNEY, Prest.
WELLS, FARGO & CO.,
NATIONAL EXPRESS COMPANY,
By J. A. ALLEN
HARNDEN EXPRESS,
By L. W. WINCHESTER, Supt.
KINSLEY & CO.'S EXPRESS,
By E. LITTLEFIELD, Supt.
HOPE EXPRESS COMPANY,
A. D. HOPE, Supt.
BREESE & CO.'S EXPRESS,
By STEPHEN BREESE, Supt
NEW JERSEY EXPRESS COMPANY,
By GEORGE R. DUNN, Sup

The Greatest Improvement yet in the Sewing Machine Art!

A CURIOSITY WORTH SEEING!

Please send for circular with sample of sewing.

These Improved Machines save ONE HUNDRED PER CENT. of thread and silk, and make the LOCK-STITCH alike on both sides.

They require no instruction to operate perfectly, except "the printed directions."

No change in sewing from one kind of goods to another.

And no taking apart to clean or oil.

Our NEW MANUFACTORY is now complete, with all its machinery and tools entirely new, and is already rapidly turning out Machines which for BEAUTY and PERFECTION of FINISH are not surpassed by any manufacture in the world.

N. B.—Should any Machine prove unsatisfactory, it can be returned and money refunded.

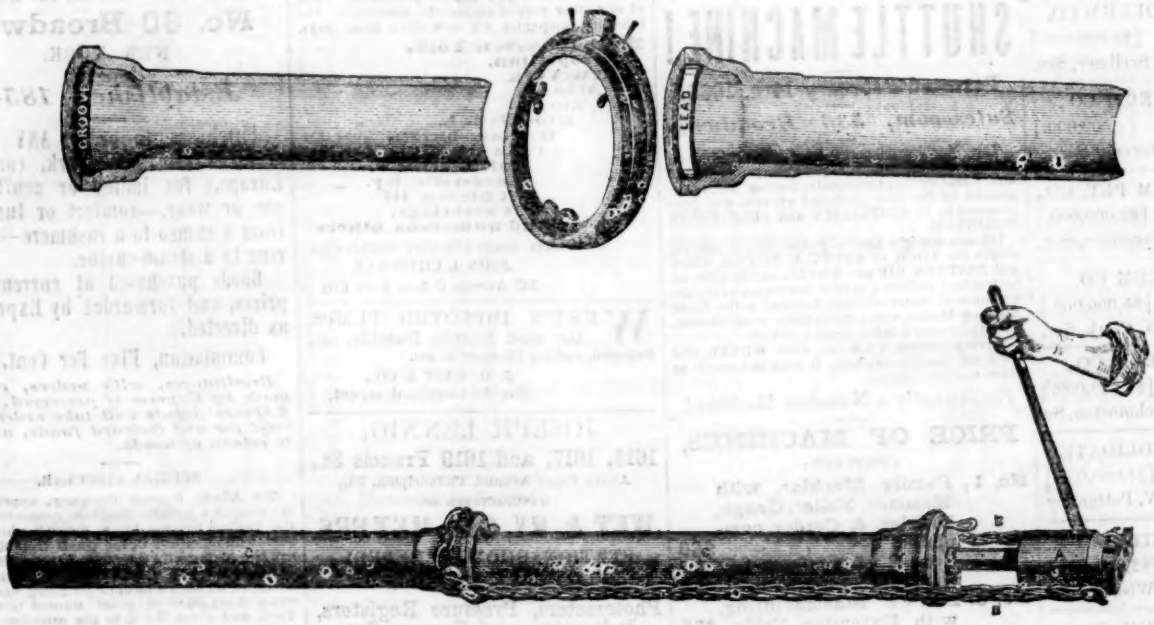
Agents wanted in counties not assed by ur own agents.

Finkle & Lyon S. M. Co.
No. 588 BROADWAY, NEW YORK

ROBBINS' PATENT GAS AND WATER JOINT.

The Proprietors of this unrivalled joint are now prepared to introduce it to general use, and to guarantee that, in all respects, it will fulfil perfectly all the requirements of either water, gas, or steam. It is a joint which remains in all situations absolutely tight.

The following illustrations, will give a good idea of the improvement.



For further information, or for prices and terms, which will be very reasonable, apply to

R. C. ROBBINS & CO., No. 218 FULTON STREET, NEW YORK.

LILLIE'S
CELEBRATED
Chilled and Wrought Iron Safes,
WROUGHT IRON FIRE-PROOFS,
LOCKS AND VAULT DOORS.

These Fire-Proofs are manufactured to supply a demand for Security Against Fire, less expensive than my celebrated and superior Chilled and Wrought Iron Burglar and Fire-Proof Safes.

They furnish similar and equal security to the Safes generally manufactured in the different cities, but are SUPERIOR to them in their Fire-Proof qualities and durability, the iron being effectually rotected from rust in any climate, and the Fire-proof not subject to lose its utility by age ' This is an important advantage gained to the purchaser, as Safes often rust out and become worthless in wo or three years.

To substantiate my position, these purchasing these Fire-Proofs are at liberty, by giving me due notice of time and place of trial, to test them by fire with any other Safe of the same size; and should they not prove superior, I will refund the money, or a new Fire-Proof, as the purchaser may decide.

LIST OF SIZES & PRICES OF WROUGHT IRON FIRE-PROOFS

No.	Outside. Height.	Width.	Depth.	Inside. Height.	Width.	Depth.	Price.
6	40	31	27	31	21	15	$150
5	34	23	26	24	21	14	125
4	31	27	25	22	18	13	110
3	30	24	24	21	15	12	100
2	28	22	23	20	14	12	75
1	24	19	20	17	11	10	50

Sample of Fire-Proof Safe at Office of the Am. Ad. Agency, 389 Broadway, N. Y.

PRICE LIST
LILLIE'S CELEBRATED CHILLED & WROUGHT IRON SAFES.

BANK, FIRE, AND BURGLAR SAFES.
Folding Doors, D Lock.

No.	OUTSIDE. Height.	Width.	Depth.	INSIDE. Height.	Width.	Depth.	Price.
	In.	In.	In.	In.	In.	In.	
1	66	50	29	54½	39	18	$950
1½	59	50	26	48	39	15	800
2	53	41	27	42½	33	15	600

MERCANTILE F AND B SAFES.
Folding Doors and Monitor Locks.

3	50	42	27	40	32	16	$500
4	46	42	27	36	32	16	450
4½	35	46	27	28	36	16	450
5	42	38	27	31½	27½	15	350

Single Doors and M. Lock.

6	38	35	26	27½	23½	15	$250
7	34	31	26	24	24	14	200
8	31	28	24	24	18	13	175
9	30	24	24	21	15	12	140
10	26	22	22	19½	13½	12	120
11	24	20	18	17	17	10	100

HOUSE SAFES

SIDE BOARD	$600
DINING ROOM	350
PANTRY (No. 1)	275
PANTRY (No. 2)	150
DODECAGON BANK LOCK	100
MONITOR SAFE do.	50
SAFE do.	10

NATIONAL BANK SAFES,
With 2 Inside Burglars and 1 D and 2 M Locks.

No.	OUTSIDE. Height.		INSIDE. Hei	Width.	Depth.	Price.
	In.		In.	In.	In.	
1	68		55	39	18	$1,200
2	61		48	39	18	1,050
3	57		42½	33	18	900

BANK VAULT BURGLAR SAFES,
With Folding Doors and D Lock.

0	68	58	27	64	48	22	$1,000
0½	61	58	27	55	46	20	800
1	57	47	27	49	40	20	600

BANK VAULT BURGLAR SAFES,
Single Doors and D Lock.

2	50	32	26	49	28		
	42	36	22	38	32	19	
4	36	31	20	32	27		0
5	30	24	18	26	20	14	

BANK VAULT DOORS AND FRAMES,
D and S Lock.

No.	Height clear.	Width clear.	Depth adjustable.	Price.	Weight.
	In.	In.	In.		
1	72	27	20	$400	3,000
2	72	27	20	275	1,500

Orders received and filled at net cash prices, by the AME[RICAN] N ADVERTISING CY, 389 Broadway, New York. All Safes shipped from Troy free of cartage.
siness Depart, E. ALVORD. Corresponding OWLER

WEST'S IMPROVED PUMP.
Anti-Freezing, Double-Acting, Forcing, and Lifting

These Pumps have now been in general use a number of years, and give better satisfaction than any other, and are recommended as

THE BEST!

by CAPTAIN ERICSSON and other eminent engineers. We can refer to thousands using them, a guarantee that all will recommend them. They are more simple in construction, and work easie and cost less than all others.

"Our readers will find the double acting, improved pump of J. D. West & Co., one of the best the market. It is very simple, works to a charm, so that any child may use it; throws a stead continuous stream, and does not freeze in the coldest exposures, and is unusually cheap. We use this knowingly, and give the testimony of our own accord, without the knowledge or request of th proprietor "—*New York Evening Post, July 1st*, 1868.

"J. D. WEST & Co: We are pleased to state that the Pumps we had of you about a year ago, have been in constant use, twelve hours each day, and raise for the use of our woolen factory, about 180 gallons per minute. They work with but little power, compared with pumps we have used before, and do not get out of repair, and are satisfactory in all respects.

"DUNLAP MANUFACTURING CO."

Solon Robinson to the Farmers' Club.

Jan. 23.

"No farmer who owns a well or cistern can possibly afford to be without an iron pump. It should be a once a suction and force pump—a perfect little fire engine—such a one known as 'West's Improved Pump.' I speak of this Pump because I happen to know it....to be very simple, durable, powerful and cheap, and it don't freeze up, nor get out of order once a year....I know this, and think I may be doing the farmers good by speaking of it.....A boy ten years old can work it, and throw a continuous inch-and-a-quarter stream....It can be made to work in deep wells as well as in shallow ones"

"The undersigned having to use "West's Improved Pumps," cheerfully recommend them as simple, durable, and powerful in raising and throwing water, and for their ease of action, security against frost, and low price, we believe them superior to all others.

"WARREN LELAND, Met. Hotel, N. Y.
"J. W. POMEROY, Yonkers, N. Y.
"JOHN MESSEREAU, N. Y.
"DOMINICK LAWRENCE, Westchester."

From the New York Observer.

"We have had in use for months past one of West's Pumps, which has given us more satisfaction as a force and lifting pump than any we have ever used. It is one of great power, and well adapted for ship's decks, mines, factories, greenhouses, graperies, etc. *The Mining Chronicle and Railway Journal* says: 'It is recommended for its extreme simplicity of construction, great strength, and consequent durability and cheapness of repair. There is no stuffing-box—the pressure being held by a cup packing, like that upon the working-piston, working in a cylinder, fitted for the purpose within the upper air chamber—which we think a great improvement, as stuffing is so liable to be deranged and leak under strong pressure, to say nothing of the loss by friction incident thereto. It has also two air-chambers; thus the action of the valve is cushioned upon both sides by air—preventing water-hammer and vacuum-thump. The valves are very accessible and simply and cheaply repaired. They work much easier than any pump we have ever seen; the 4-inch cylinder being worked by children in wells 100 feet deep, and as they are extremely cheap, as well as simple and strong, we freely recommend them.'"

"CAMBRIDGE MINE, N. C., June 15, 1868.

"J. D. WEST & Co.—GENTS: The Pump which I ordered for our mine is received, and put to work in our underlay shaft, which we are sinking. We find that one man will, with ease, lift 50 gallons per minute. We lifted in three and a half hours all the water in the shaft, which measures seven by twelve feet and thirty feet deep, and it was full when we commenced. It answers our expectations in every respect, and our workmen are highly pleased with it. It will do great service with but trifling expense for repairs.

"Yours, respectfully, BURR HIGGINS."

"This may certify, that I have been using, at my manufactory, for the last four years, 'West's Improved Pumps.' I now have in use three of said Pumps, one of which is kept constantly at work, 24 hours of each day (save Sunday, and has been running for the past two years. I pronounce them, unhesitatingly, the best Pumps that have been brought to my notice, having used many others previously. They are simple in their construction, and not easily disarranged.

"N. Y., Oct. 10, 1859. JAS. A. WEBB."

We have plenty more such certificates, but think these are enough. For Pumps, Hose, Pipe, etc., address or call upon

J. D. WEST & CO., 40 Cortlandt st., New York.

Orders may be sent through the AMERICAN ADVERTISING AGENCY, 389 Broadway

EDDY'S

Kerosene Cooking & Heating

STOVES AND RANGES.

THESE COOKING STOVES WILL

☞ *Bake, Boil, Stew, Fry and Roast,*

With the greatest economy and facility, and without heating the room in which they are used. They are perfectly simple, operating like an ordinary Kerosene Lamp with a chimney, and are the only Kerosene Stoves that burn without smoke or odor.

"We have been perfectly astonished to see what a labor-saving, dirt saving and heat-saving institution is EDDY'S PATENT KEROSENE STOVE. Taking the cost of running it, and the result attained, it is the best patent in the market."—*Worcester Daily Spy.*

Our Heating and Cooking Stoves are very convenient and economical, especially where a fire is required but a few hours at a time.

Orders for Stoves may be sent through American Advertising Agency, 389 Broadway, New York.

LESLEY & ELLIOT,
Manufacturers, No. 494 Broadway, New York.
Send for Illustrated Circular. (136

KNITTING MACHINES

FOR

Families and Manufacturers,

☞ *Something New and Invaluable for Family Use.*

We offer the public the simplest, strongest and best Knitting Machine in the world.

It occupies but little space—is portable and can be attached to a stand or table, weighs about 40 lbs.

It will knit a variety of Stitches—the breakage of needles is trifling—the cost of needles is insignificant and the most delicate material can be knit pure and spotless, as the needles are not oiled.

Orders for Machines may be sent through the American Advertising Agency, 389 Broadway, N. Y.

Send for a Circular—Agents wanted.

DALTON KNITTING MACHINE CO.,
137] 537 Broadway, N. Y.

WEED'S

HIGHEST PREMIUM

Shuttle Sewing Machine

Has only to be seen and operated to be Appreciated.

Call and see for yourself before purchasing. Please bring samples of various kinds of thread, (such as is usually found at stores,) and various kinds of fabric, which you know the former most popular Sewing Machines either cannot work at all, or, at best very imperfectly.

SUPERIORITY.

over any other Machine in the market will be seen at a glance.

1st. It runs easily and rapidly, and is so constructed as to endure all kinds of hard usage.

2d. No breaking of threads in going over seams.

3d. No imperfect action of the feed at uneven places in the work.

4th. The Weed-stitch catches of itself, and will sew from the finest lace to the heaviest leather, and 20-1 cotton to coarse linen thread.

5th. The Weed Machine will do beautiful quilting on the bare wadding, without using inner lining; thus leaving it soft as if done by hand.

6th. The variety of fancy work that can be done on the

WEED MACHINE,

with so little trouble, makes it equal, if not superior, to six machines combined; for instance, it Binds, Hems, Tucks and Sews on the band at the same time, and in face, the

WEED NO. 2 MACHINE,

as before stated, is equivalent to a combination of any six ordinary machines.

Orders for Machines may be sent through the American Advertising Agency, 389 Broadway, N. Y.

Below we give a few prices:

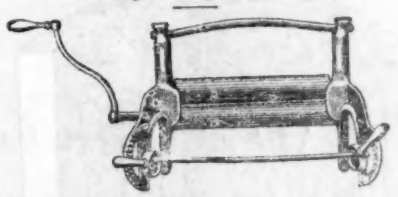
No. 2. Oil Black Walnut, Ornamented with Hemmer.	$60,00
No. 2. Oil Black Walnut, Hall Case, Ornamented, with Hemmer.	65,00
No. 3. Extra Oil Polished Black Walnut, Half Case, Large Table beautifully Ornamented.	75,00

WEED SEWING MACAINE Co.,
136) 506 Broadway, New York.

PUTNAM'S CLOTHES WRINGER.

IT IS THE ONLY RELIABLE

Self-Adjusting Wringer.



No Wood-work to Swell or Split. No Thumbscrews to get out of order. Warranted with or without Cog wheels.

It took the First Premium at Fifty-seven State and County Fairs in 1863, and nearly double that number in 1864, and is, without an exception, the *best* Wringer ever made. Patented in the United States, England, Canada, and Australia. Agents wanted in every town, and in all parts of the world. Energetic agents can make from $3 to $10 per day.

WHAT EVERYBODY KNOWS, VIZ.:

That Iron well galvanized *will not rust.*
That a *simple* machine is better than a complicated one.
That a Wringer should be *self-adjusting, durable, and efficient.*
That thumb-screws and fastenings cause *delay* and *trouble* to regulate and keep in order.
That wood soaked in water will *swell, shrink,* and *split.*
That wood-bearings for the shaft to run in *will wear out.*
That the Putnam Wringer, with or without cog wheels, will *not tear the clothes.*
That cog-wheel regulators are not essential.
That the Putnam Wringer has *all* the advantages, and *not one* of the disadvantages above named.
That all who have tried it pronounce it the *best* Wringer ever made.
That it will wring a thread or a bed-quilt *without alteration.*

We might fill the paper with testimonials, but insert only a few to convince the skeptical, if such there be; and we say to all, *test* Putnam's Wringer. Test it *thoroughly* with *any* and any others, and if not entirely satisfactory, return it;

PUTNAM MANUFACTURING CO.—*Gentlemen:* I know from practical experience that iron well galvanized with zinc will not oxydize or rust one particle. The Putnam Wringer is as near perfect as possible, and I can cheerfully recommend it to be the best in use. Respectfully yours,

JOHN W. WHEELER, Cleveland, O.

Many years' experience in the galvanizing business enables me to indorse the above statement in *all particulars.*

JOHN C. LEFFERTS, No. 100 Beekman St.

NEW YORK, *January,* 1864.—We have tested Putnam's Clothes Wringer by practical working, and know that it will do. It is cheap; it is simple; it requires no room, whether at work or at rest; a child can operate it; it does its duty thoroughly; it saves time, and it saves wear and tear. We earnestly advise all who have *much* washing to do, with all intelligent persons who have *any,* to buy this Wringer. It will pay for itself in a year at most. HORACE GREELEY.

PRICES—$8, $9, and $10.
Sample Wringers sent, express paid, on receipt of price.
Manufactured and sold, wholesale and retail, by

PUTNAM MANUF'G CO.,
13 PLATT STREET, New York,
BENNINGTON, Vt.,
CLEVELAND O.

WATER AND GAS PIPE.

The Boston Bituminized Pipe Company,

Are now manufacturing and prepared to take orders, for their PATENT PIPE, (from 2 to 12 inches in diameter,) as a substitute for Iron, Copper, Lead, &c., for the conveyance of WATER, GAS, SEWERAGE, &c. &c.

From the testimonials received, and the entire satisfaction it has given those having it in use, we feel warranted in claiming for this pipe over that of any other, the following advantages, viz:

It is much CHEAPER—has great strength (it having been tested to 500 lbs. to the square inch,) combined with LIGHTNESS, costing less for transportation; the joints are easily made and perfectly tight; it does not expand or contract from different degrees of temperature, and is free from *CORROSION* or *CONCRETIONS* forming; does not impart any taste or injurious properties to water, and as far as anything can be said to be indestructible, we deem this to be.

As a GAS PIPE, we say it has no superior. The Lowell Gas Light Co., purchased and laid some of this Pipe last year, and have likewise subjected samples to a test of four months duration in their dry lime purifiers, with the most satisfactory results, in fact establishing beyond a doubt, its perfect adaptation to the wants and requirements of Gas Companies, specimens of which, together with the statement of O. E. Cushing, Esq., Agent Lowell Gas Light Co., who made these experiments, I shall be pleased to show, and give all other needed information, by applying in person, or by letter, to JOHN L. WEBSTER, Treas.,

Boston Bituminized Pipe Co.,
127] No. 2 Pearl st. House, Boston.

AMBROSE SPENCER GILCHRIST.

(LATE CAPT. U. S. V.,)

CIVIL, MINING

AND ARCHITECTURAL ENGINEER,

No. 200 BROADWAY, Office 12.
New York.

New York, April 18th, 1864.

* * * * * * *

We respectfully invite your attention to and consideration of the justly celebrated and reliable remedy for DYSPEPSIA, HEARTBURN, DEBILITY and PROSTRATION. The Proprietors are proud to acknowledge the unparalleled success which has attended the sale of their valuable preparation, known in nearly every portion of the civilized world as the

"GOLDEN BITTERS."

We risk nothing when we term them a *valuable preparation,* for they are one of the few articles of the present day which are not a humbug; and we are willing and able to satisfy any person or persons who will call upon us, that the celebrated "GOLDEN BITTERS" are a genuine *bona-fide hygienic* article. It is the wish of the proprietors that the virtue of the article be tested before condemning. A decision of their merits by any one who has tried them, is worth a million of purchased bogus testimonials.

For Creating a Healthy Appetite

they are invaluable, and are unequalled as a TONIC. They are mild in their action, and operate by giving *vigor* and *strength* to the system,—not by any change they produce in the solids, but through the medium of the living principle.

They are Purely Vegetable,

being composed of Gentian Root, Calamus, Sassafras, and many other remedial agents of the Vegetable world, all preserved in Jamaica Rum and Sherry Wine.

As a Beverage,

They are the most *wholesome, invigorating* and *palatable* stimulant ever offered to the public. And the fact of their being prepared chemically and scientifically, precludes the possibility of a bitter, unpleasant taste, common to Bitters generally offered for sale. We especially recommend them to LADIES, and particularly to those suffering from

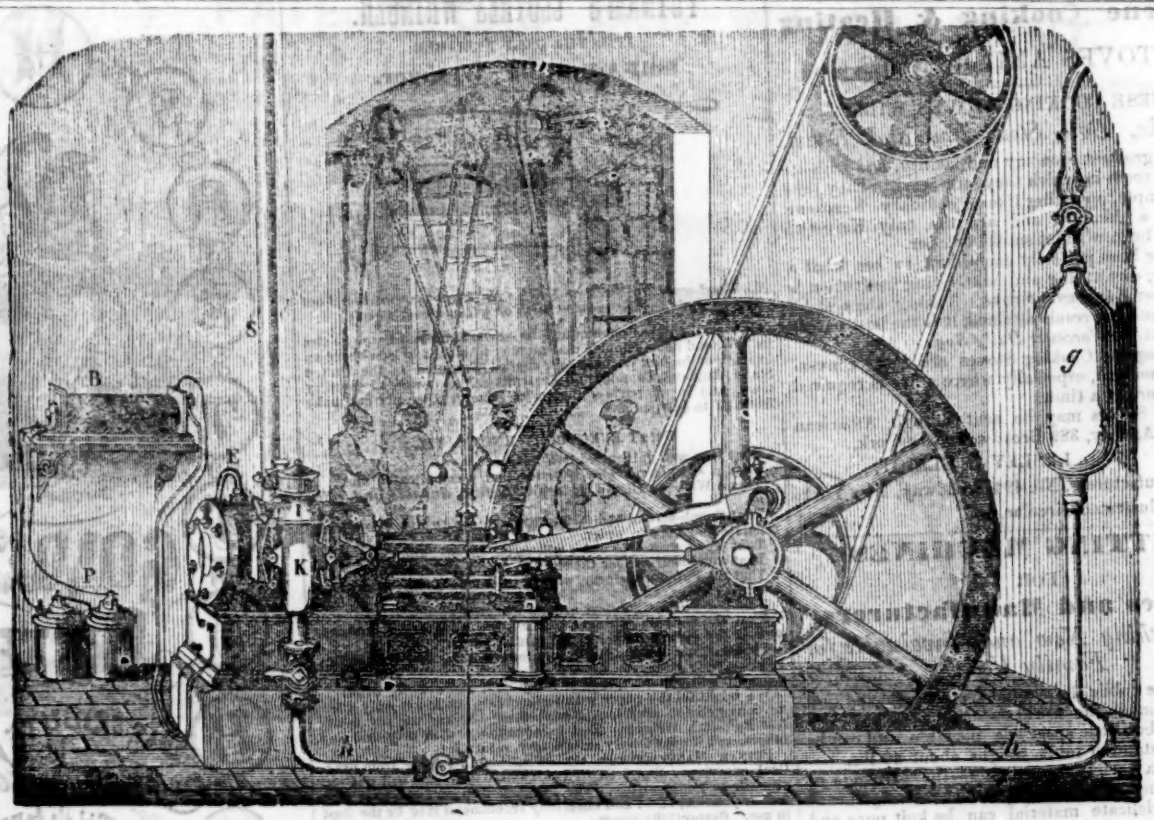
DEBILITY, WEAKNESS, AND PROSTRATION.

Half a wine glass of these "Bitters" three or four times a day, will produce a remarkable healthy change in persons greatly debilitated.

The "Golden Bitters" have been tried and not found wanting. They are put up in our own *Patent* quart bottles, and for sale by Druggists, Grocers, &c., throughout the world. Each bottle bears a fac-simile of the signature of Hubbell & Co.

GEO. C. HUBBEL & Co., Sole Proprietors
CENTRAL DEPOT, American Exp. Building, New York.

THE GOLDEN BITTERS.—We are not an advocate of stimulants of an alcoholic character; indeed we deprecate this "daily tonic" idea—this "morning toddy" which we see offered in all sorts of shapes as a recuperator, invigorator, revitalizer, &c. As a rule all artificial stimulants are dangerous remedies, and must be taken into the system as you would mercury or arsenic, in very small doses. But we have had an opportunity to try the now well-advertised article known as Hubbel's Golden Bitters, and are frank to say that where the system needs building up, where a stimulant is required to aid nature in restoring a lost appetite and infusing a vigorous action to the debilitated functions, we can recommend these Bitters. Hubbel's Golden Bitters are evidently intended to improve the debilitated human system, rather than to tickle the palate, and are, therefore a harmless and safe remedy to keep in the house.—*New York Weekly Day Book.*



MOTEUR—LENOIR.

LENOIR GAS ENGINE.

This is a horizontal engine, in which a piston, by a connecting rod drives a horizontal shaft.

The gas enters by the pipe "h" from the regulating reservoir "g," (made of vulcanized india rubber,) which regulates the feeding and the branches connected with the gas-pipe.

The tube, K, receives the gas conveyed by the pipe "h," and conducts it to the valve, which opens and closes alternately, by means of a rod moved by an eccentric wheel fastened to the end ot the shaft.

Two of Bunsen's piles, P, sufficient to produce the electricity are placed at a little distanc from, and in communication with a Ruhmkorff electric apparatus, B. The electric current of this apparatus is conducted by means of insulated wires to the electricity distributor "m," placed on the front of the frame, while the current of electricity and its arrival at the inflammator, inserted at each end of the cylinder, is directed by the movement of the piston-rod, which, by an ingenious combination, impels a small movable slide before the distributor.

The burnt gas, after having performed its functions in the machine, escapes, by means of a valve, through a pipe, S, and the water designed to cool the interior of the cylinder enters through a double passage, by means of a pipe situated near the escape-valve, and goes out by the pipe, E.

A two horse and a half horse Engine are now in practical operation at the Dry Dock Iron Works, No. 435 East Tenth street, near East River, New York, where they are being manufactured, and those interested are invited to call and examine them.

THE LENOIR GAS ENGINE

Requires no Fire and makes no Smoke,

No Noise, no Dirt, and is thoroughly safe.

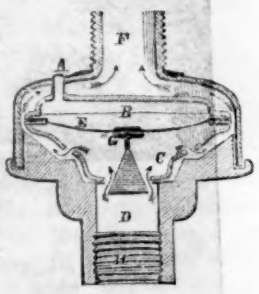
It is propelled by the expansion of Air, dilated by the combustion of Gas within the cylinder, ignited by the

ELECTRIC SPARK

NOTICE TO GAS COMPANIES AND GAS CONSUMERS

THOMPSON'S PATENT GAS CONTROLLER,

The only Self-Acting Gas Controller, Regulator, and Burner Combined which has ever been invented, or known to science.



THE PRINCIPLE UPON WHICH THE THOMPSON'S AUTOMATIC GAS CONTROLLER works is one well known to mechanics, and is simple in its operation.

Within the circumference of a small cylinder below the burner is placed a conical valve attached to a movable diaphragm. The diaphragm rises or falls as the pressure of gas from the pipe is lesser or greater, and the valve acts upon the valve-seat with such regularity of movement that in a difference of from five-tenths of an inch pressure to five inches the variation in flame is hardly perceptible.

The simplicity of its machinery and the nature of the material used in its construction insure its regular action and durability.

In consequence of the uniform quantity of gas which passes the Controller to the burner, there is no waste, and a steady, soft flame is produced, which is important to all who read, write, or work by gas-light. The unsteady flickering blaze which invariably exists when the pressure of gas is beyond the requisition for consumption, has injured the sight of thousands who have been subjected to it.

For street lamps these Controllers are especially valuable, because the pressure varies materially during the night, and in consequence there is a waste of gas, and the light variable.

Improvements have lately been made in the mechanism of the Controller which makes them almost a perfect meter to each burner, and they are now offered to the public with more confidence than ever before.

Reference is permitted to the following named gentlemen—

Col. CHAS. ROOME, President Manhattan Gas Company, N. Y.
C. H. SAND , Esq., President Metropolitan Gas Company, "
J. H. ADAM, Esq., President New York Gas Company, "
PETER COOPER, Esq., Cooper Institute, "
JOHN A. DUFF, Esq., Olympic Theatre, "

GEO. H. KITCHEN, Inspector of Gas Meters, N. Y
A. L. BOGART, Esq., Gas Engineer.
Col. J. A. SABATTON, Engineer Manhattan Gas Company.
Col. A. J. WHITE, Engineer Metropolitan Gas Company.
J. K. SIMPSON, Esq., Engineer Cooper Institute.

Persons interested are invited to call at the Office, 111 Pearl street, where they can see the operation by pressure guage and test meters

M. L GALLENDAR, Agent
Office, 111 PEARL STREET.

THE AMERICAN METER CO.

Organized under the General Manufacturing Laws of the State of New York.

SAMUEL DOWN, PRESIDENT. HENRY CARTWRIGHT, VICE PRESIDENT. RICHARD MERRIFIELD, SECRETARY AND TREASURER.

TRUSTEES.

SAMUEL DOWN, WILLIAM HOPPER, R. H. GRATZ, HENRY CARTWRIGHT, RICHARD MERRIFIELD.
THOMAS C. HOPPER, *Superintendent at Philadelphia.*

This Company is now prepared to furnish WET AND DRY GAS METERS, STATION METERS, GOVERNORS, PRESSURE INDICATORS & REGISTERS, SERVICE and METER COCKS, and all other articles in their line appertaining to the use of Gas-Works.

The combination of Mechanical and Scientific Skill, and the long experience of the several members of the Company, is a sure guarantee of durability, and excellence of workmanship. Orders addressed

AMERICAN METER COMPANY,

512 West Twenty-Second Street, New York. Arch and Twenty-Second Streets, Philadelphia. No. 23 West Street, Boston will meet with prompt attention.

Harris & Brother, Practical Gas Meter Manufacturers,

Continue, as heretofore, at their old Establishment, No. 1117 CHERRY ST., PHILADELPHIA, to Manufacture
WET AND DRY GAS METERS, and all kinds of GAS APPARATUS, and furnish all articles appertaining to the use of Gas Works. ☞OUR WORK WARRANTED—Satisfaction Guaranteed. Orders respectfully solicted, and promptly attended to, by

HARRIS & BRO., No 1117 Cherry st., Phila.

Messrs. Harris & Brother,
Dear Sirs;—I take great pleasure in stating that we have found your meters to register with entire correctness, and to be generally of very good quality; the number furnished by you to these works is over 5,000.

Philadelphia Gas Works, February 14, 1857.
JOHN C. CRESSON, Engineer.

This is to certify that having used meters manufactured by Messrs. Harris & Bro., for the last nine years, we do not hesitate to state they have given entire satisfaction in point of workmanship and accuracy of registration; they are surpassed by none, and equaled by few mrnufactories in the Union; we have used meters made by other establishments, but our preference is in favor of those made by Harris & Bro., of Philadelphia, Pa.

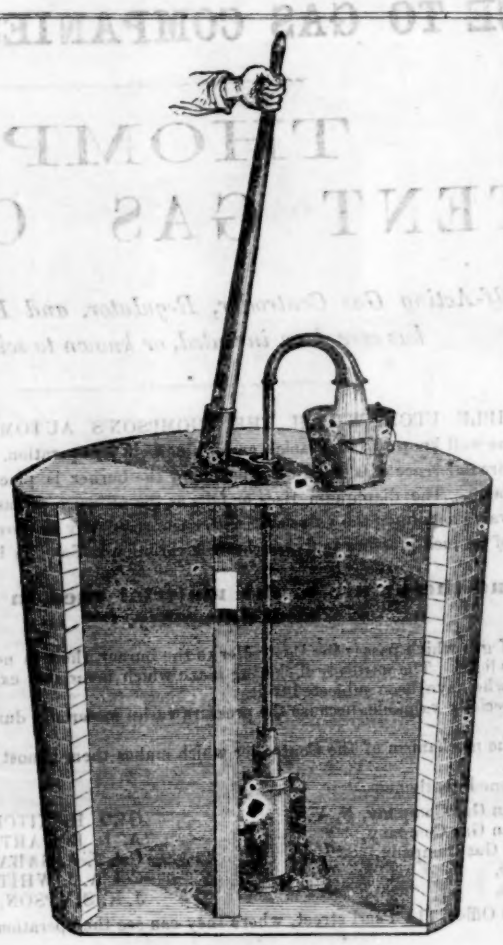
Office of the Gas Light Company of Augusta, Ga., March 6th, 1858.
G. S. HOOKEY, Superintendent of the Gas Light Company of Augusta, Ga.

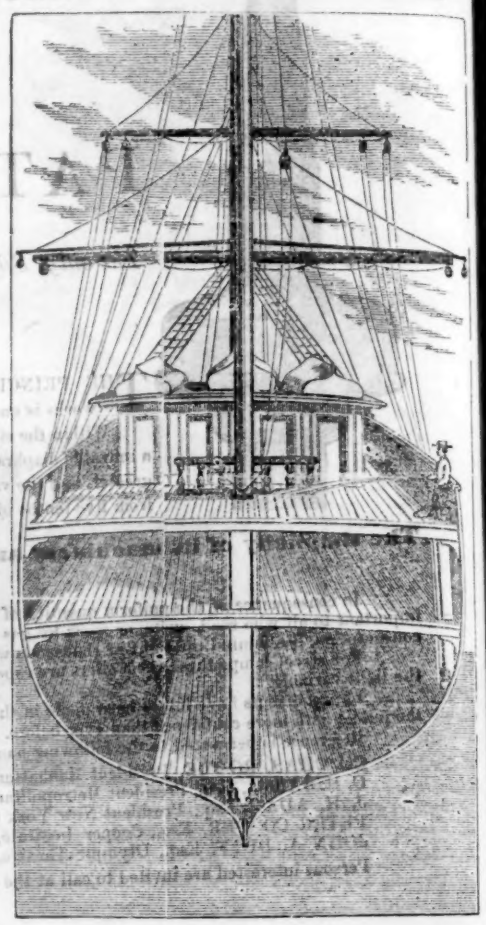
Messrs. Harris & Bro., Philadelphia.
Gentlemen—We take great pleasure in bearing our testimony to the very superior character of the meters we have received from your establishment. We have always found the workmanship all we could desire, while the accuracy and reliability of their measurement have always been satisfactory. We have used meters made by other parties, and none have given as entire satisfaction as those received from you. We are, gentlemen, very truly yours,

Philadelphia, March 4, 1858.
PERKINPINE & MEARS.

Messrs. Harris & Bro.
Gentlemen—For the last ten years we have used in the Philadelphia Gas Works, meters made in your factory and take pleasure in expressing my opinion to their correctness. On several occasions I have taken your meters apart, and found the materials used in the manufacture of the same to be as fine quality as used in those imported from Europe, or made by any of the manufacturers in the United States. Respectfully Yours,

March 14, 1857.
GEORGE WIGGAN
Fittings, Pha





ITS ADVANTAGES.

This valuable Invention, now first introduced, will, it is believed, supersede all clases for any purpose in use at the present time.

FIRST.—SIMPLICITY. The entire pump is composed of but six parts, all of cast-iron, which can be put together by any mechanic.

SECOND.—DURABILITY. From the fact that it is always submerged, it is perfectly lubricated, and requires no packing. As no water can remain in the pipe when not in motion, there is no danger of freezing.

THIRD.—CAPACITY. It is contended that, for the power applied, this Pump excels all others. The No. 1 (the smallest size.) of this Pump, with the power of one hand, has a capacity of thirty gallons per minute, and will throw a stream seventy feet in the air.

FOURTH.—CHEAPNESS. For economy, this Pump surpasses all others, its first cost being about one-third less than that of other Pumps of the same capacity, and being much less both in size and weight, there is a great saving in transportation.

ITS USES.

FIRST.—For a House Pump; the smallest size of the patent Submerged Pump is sufficient for all family purposes. Placed in a well or cistern, water may be conveyed to every room in a common sized house.

SECOND.—For a Farm Pump; for all purposes connected with irrigating, watering stock, etc., etc. This Pump can be placed in running streams, ponds, bayous, etc., and water conveyed to any required distance.

THIRD.—For a Ship Pump; Any ship owner or captain, with short experience in the use of this Pump, will give his unqualified approval for ship purposes, either to be used as a bilge pump simply, or for washing decks, etc. From its simplicity, as a bilge Pump it will be found entirely free from choking, and will clear grain, dirt, stones, etc., with ease.

FOURTH.—For a Factory Pump, or for air in Oil Wells, for Breweries, or for pumping acids, hot liquors, etc., it is invaluable. It cannot be affected by any liquid.

FIFTH.—To all Directors and Officers connected with mining interests, the PATENT SUBMEAGED PUMP presents great advantages.

The experience of the last five years have clearly proved at what great expense, both in first cost and freight, it has been necessary to be at to secure the proper means of expelling water from the mines, quarries, etc. With this Pump an immense saving is effected in both instances, as in first cost it is much less than other Pumps of the same capacity and power.

Its princeple is that of a Double-acting Force Pump, with a heavy double-acting piston cast in one piece, and a double-acting iron valve within the same, without the use of leather valves or any packing whatever.

Recommendations of the American Submerged Pump,

OWNED BY THE AMERICAN PUMP MANUFACTURING CO., NEW YORK.

OFFICE, No. 40 DEY STREET.

Office of the American Ship Building Company, New York, Oct. 24, 1864.

I am very much pleased with the economy and simplicity of the American Pump, which I have examined with much interest. IT IS ADMIRABLY ADAPTED FOR SHIP PURPOSES, and from its GREAT POWER would do incalculable service in the event of LEAKAGE. It also works well in pumping, where the cargo consists of grain in bulk, and is free in its action.

AUGUSTUS WALKER, Marine Constructor.

New York, October 26, 1864.

To the American Pump Manufacturing Co.:

I have examined with much interest the working and results of the Double Action Force Pump which you are introducing in the market. For use as a Ship Pump and for Mining purposes, I consider it of great value, the results far exceeding anything of the kind presented to my observation, particularly for its GREAT POWER and SIMPLICITY. It will give me pleasure to recommend its introduction into the Navy. Please deliver as soon as possible the Pumps ordered by me last week, for the Mines of the Middlefield Fire and Building Stone Company of Massachusetts, and oblige. Yours, respectfully, CHARLES B. STUART, Consulting Engineer, U. S. N.

Office of the Neptune Iron Works, New York, February 6, 1865.

To the American Pump Manufacturing Co.:

I was very much impressed in examining the Pump manufactured by your Company. The originality of the design is in good keeping with its simplicity of construction—certainly very desirable qualities in all mechanical combinations. The extensive demand is the best proof of the popularity and favor it is receiving from the public. I have no hesitancy in recommending it to the inspection of those wishing THE BEST PUMP in the country.

CHARLES HUBBARD, Jr.,
Superintendent.

Office of Donald McKay,
East Boston, Aug. 15, 1865.

Alvin Walker, Esq., Sec. American Submerged Pump Co

DEAR SIR:—In answer to your request for my opinion of your Patent Submerged Pump, will say, that for simplicity, compactness and durability, it has the appearance of being the BEST mechanical combination I have seen, having fitness combined with its simplicity, making it SUPERIOR to Pumps now generally used for general purposes on land. Also, well suited as a Ship Deck Pump, and, in my opinion, can be arranged to be readily used as a good Bilge Pump for Ships.

Yours truly,
HRMAN WINTER

CAMP PAROLE, ANNAPOLIS, Md., April 22, 1865.

Wm. Numson, Esq., President, Baltimore:

DEAR SIR,—The No. 2 Pump has been properly adjusted, and works to our entire satisfaction Hoping you may be successful in introducing it to the public, we remain,

Very respectfully, yours, &c.,
JONES & CROWLEY.

(Letter from the President of Board of Common Council, City of Boston)

Boston, August 10, 1865.

A. Walker, Esq., Sec. American Submerged Pump Co.—

Dear Sir—In reply to your request for the results of the trial of one of your Pumps, I will briefly state the purpose for which it was needed, and the complete satisfaction attained. It was desired to clean out a well 42 feet in depth, in which there stood 10 feet of water; I had previously vainly tried several methods, in one of which one large Force Pump and as many buckets as could be used, succeeded in 10 hours in reducing the depth of the water to 9 feet, but beyond that nothing could be gained. I then put in one of your smallest Pumps, which drained the well completely in Six Hours; although the spring which fed the well yielded a stream of water about as large as a man's arm. I need not say that I consider the Pump fully capable of accomplishing what you claim for it. Yours truly, W. B. VOW

I can fully endorse the above statement. GB